

### **REMARKS**

The Examiner has objected the drawings and the specification. The Examiner has also rejected claims 1 through 4, 9 through 14, 19 and 20 under 35 U.S.C. §103(a). However, the Examiner has indicated allowable subject matter in claims 5 through 8 and 15 through 18 if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the above amendments and the following remarks, the Applicants respectfully request the Examiner to reconsider the pending rejections.

#### **The Drawing Objections**

The Examiner has objected to Figures 1, 2 and 4. The Examiner has pointed out that the disclosures fail to refer to reference numbers 17 and 18 in Figure 1; 37 in Figure 2; and 51 in Figure 4. For the Figure 1 objection, the specification at line 4 on page 8 has been amended to refer to the reference numerals 17 and 18. Similarly, for the Figure 2 objection, the specification at line 23 on page 8 has been amended to refer to the reference numeral 37. Lastly, for the Figure 4 objection, the specification at line 9 on page 10 has been amended to refer to the reference numeral 51. Thus, all of the reference numerals have been now addressed by the specification amendments, and no figure has been amended to respond to the pending drawing objections. Therefore, the Applicants respectfully request the Examiner to withdraw the drawing objection.

#### **The Specification Objections**

The Examiner has objected to the specification for the following informalities. The Examiner has kindly pointed out that line 4 on page 8 should be amended to read "ROM 17 and RAM 18" for Figure 1. As discussed in the above drawing objection, the specification has been so amended. Similarly, the Examiner has kindly pointed out that line 30 on page 8 should be amended to read "parallel data I/F unit 37." The

specification has been so amended, and two other occurrences at lines 31 and 23 have been also amended. Furthermore, “a serial data interference (I/F) unit 38” has been amended to read “a serial data interference (I/F) unit 38, 39” at line 23 on page 8. Additional amendments have been voluntarily made at lines 15 and 16 on page 17 for the sole purpose of clarifying the subject matter. Thus, all of the objected specification have been now addressed by the specification amendments. Therefore, the Applicants respectfully request the Examiner to withdraw the specification objection.

#### The Section 103 Rejections

The Examiner has rejected claims 1 through 4 and 10 under 35 U.S.C. §103(a) as being allegedly obvious by the Knox reference in view of the Clouthier reference and the Matsuda reference. The Examiner has rejected claim 9 under 35 U.S.C. §103(a) as being allegedly obvious by the Knox reference in view of the Clouthier reference and the Carey reference. The Examiner has rejected claims 11 through 14 and 20 under 35 U.S.C. §103(a) as being allegedly obvious by the Knox reference in view of *In re Larson* and the Matsuda reference. The Examiner has rejected claim 19 under 35 U.S.C. §103(a) as being allegedly obvious by the Knox reference in view of *In re Larson*, the Clouthier reference, the Matsuda reference and the Carey reference. In view of the above claim amendments and the following remarks, the Examiner is requested to reconsider the pending rejections.

Newly amended independent claim 1 now explicitly recites that “determining an edge amount for each of the portions in the front side image;” and “separating the see-through back image from the original front image based upon the edge amount ....” Similarly, newly amended independent claim 11 now explicitly recites that “an edge amount determination unit ... for determining an edge amount for each of the portions in the front side image;” and “a determination unit ... for separating the see-through back image from the original front image based upon the edge amount ....” In other words,

newly amended independent claims 1 and 11 both call for “the edge amount” to separate “the see-through back image from the original front image.” Furthermore, to determine the edge amount, newly amended independent claims 1 and 11 both call for only “the front side image.”

In contrast to the above explicitly recited patentable features of the current invention, the Knox reference discloses a totally different method and system for eliminating the see-through defects in duplication. Firstly, the method and system in the Knox reference requires that both the front side and the back side image of double-sided documents are scanned and used in eliminating the see-through defects. In fact, the Knox reference specifically discloses at lines 60 through 63 in column 5 that “[w]ith only the scanned image from one side, there would be no way of distinguishing between the low contrast ‘show-through’ information from the back side and the low contrast information from the front side of the page.” Furthermore, the Knox reference discloses models for expressing the scanned front and back images P and Q based upon corresponding true images A and B as expressed by the equations (1) and (2) in column 6. The scanned front image P is modeled to have a summation of the its true image A and  $f$ (the back side true image B), where  $f$  is a predetermined “constant describing the contrast level of the show-through portion of the image.”

The Matsuda reference also discloses a different method and system for eliminating the see-through defects in duplication. Firstly, the method and system in the Matsuda reference requires a brightness histogram of the scanned image data. Although one-side scanned image is necessary to generate the histogram, the determination of show-through portions is based upon a peak brightness  $L_p$ , which is the mode brightness and exists within the specified region from a maximum brightness  $L_m$  as disclosed at lines 46 through 65 in column 5. Consequently, the Matsuda reference at lines 31 through 33 in column 6 that “the existence of show-through can be determined by the fact

that the value obtained by subtracting the peak brightness  $L_p$  from the maximum brightness  $L_m$  exceeds a certain limit.”

The Clouthier reference discloses a method and apparatus for halftoning of images in a printer. An optimal one of predetermined halftone procedures is selected for a certain image type such as text, graphics or raster image in rendering an image. The Clouthier reference fails to disclose, teach or suggest the elimination of the undesirable effects of the see-through defects in double-sided duplication.

As pointed out above, newly amended independent claims 1 and 11 each explicitly recite “the edge amount” to separate “the see-through back image from the original front image.” Furthermore, to determine the edge amount, newly amended independent claims 1 and 11 both call for only “the front side image.” In sharp contrast, the Knox reference requires both sides of the image data and performs a different method of determining the see-through portions. In fact, the Knox reference clearly teaches away from the patentable features of the current invention by requiring the image data from two sides. Thus, the Knox reference fails to disclose, teach or suggest “the edge amount” determination based on “the front side image.” Similarly, the Matsuda reference also fails to disclose, teach or suggest “the edge amount” determination based on “the front side image.” Lastly, the Clouthier reference fails to disclose, teach or suggest the elimination of the undesirable effects of the see-through defects in double-sided duplication. Based upon the above reasons, the Applicants respectfully submit to the Examiner that it would not have been obvious to one of ordinary skill in the art to provide the patentable features as explicitly recited in newly amended independent claims 1 and 11.

Dependent claims 2 through 10 and 12 through 20 ultimately depend from newly amended independent claim 1 or 11 and incorporate the above discussed patentable features of newly amended independent claims 1 and 11. Therefore, the Applicants

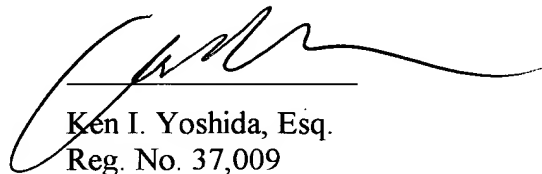
respectfully submit to the Examiner that the rejections of claims 1 through 4, 9 through 14, 19 and 20 under 35 U.S.C. §103(a) should be withdrawn.

In addition, claims 21 through 24 have been added to recite the subject matter limitations of original independent claims 1 and 11. Newly added claims 21 through 24 ultimately depend from newly amended independent claim 1 or 11 and incorporate the patentable features. No new matter has been introduced, and the subject matter limitations of these newly added claims have been supported by the original disclosures of the current application. Thus, newly added claims 21 through 24 should be also entered.

### **Conclusion**

In view of the above amendments and the foregoing remarks, Applicant respectfully submits that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

Respectfully submitted,



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